REMARKS

Claims 1-5 are all of the claims pending in the application. By this Amendment, Applicant hereby editorially amends claims 1-3 for improved conformity with the US practice. The amendments to claims 1-3 were made for reasons of precision of language and consistency, and do not narrow the literal scope of the claims and thus do not implicate an estoppel in the application of the doctrine of equivalents.

By this Amendment, Applicant also adds claim 6, which is clearly supported throughout the specification and is patentable by virtue of its dependency and for additional features set forth therein.

I. Formal Matter

Applicant thanks the Examiner for initialing the form PTO/SB/08 submitted with the Information Disclosure Statement of August 30, 2006, indicating that the documents cited therein have been considered.

II. Summary of the Office Action

The Examiner objected to claim 2 and rejected claims 1-5 under 35 U.S.C. § 103(a).

III. Claim Objection

Claim 2 is objected to as being indefinite and redundant. Claim 2 is hereby amended, without narrowing, for purposes of clarity. Applicant respectfully submits that claim 2 is definite and not redundant.

IV. Claim Rejections under 35 U.S.C. § 103(a)

The Examiner rejected claims 1-3 under 35 U.S.C. § 103(a) as allegedly being unpatentable and obvious over U.S. Patent No. 6,700,400 to Atarashi (hereinafter "Atarashi").

Claims 4 and 5 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Atarashi in view of U.S. Patent No. 6,541,937 to Kato (hereinafter "Kato"), and Atarashi in view of U.S. Patent No. 6,591,758 to Kumar (hereinafter "Kumar"), respectively. Applicant respectfully traverses these rejections and respectfully requests the Examiner to reconsider these rejections at least in light of the comments which follow.

Turning first to independent claim 1, the claim recites, *inter alia*, "a d-axis current generating means for generating, in accordance with the motor's rated loss decreased by the loss, an instruction signal for a d-axis current that is passed through the motor," and "a controlling means for judging, from the DC voltage, whether or not the motor is operating in a recovery state, and for activating the d-axis current generating means if the motor is in the recovery state." The Examiner alleges that Atarashi teaches the d-axis current generating means and that a person of ordinary skill in the art would recognize that the activating the d-axis current generating means if the motor is in the recovery state is obvious. Applicant respectfully disagrees.

An exemplary embodiment of the present invention relates generally to control devices, for permanent magnet synchronous motors, that control, considering the motor's load conditions, so as to allow its recovering electric power to be consumed by the motor (*see* page 1, lines 5-8 of the specification). When the conventional control device for permanent magnet synchronous motor is operated without limiting d-axis current, an increasing copper loss in the motor makes its temperature exceed the allowable limit and causing a problem for the conventional motor by having the motor being over-loaded (*see* page 2, line 25 through page 3, line 5 of the specification). It will be appreciated that the foregoing remarks relate to the invention in a general sense, the remarks are not necessarily limitative of any claims and are intended only to help the Examiner better understand the distinguishing aspects of the claims mentioned above.

Atarashi does not disclose controlling, considering a motor's load conditions, the motor so as to allow its recovering electric power to be consumed by the motor. Rather, Atarashi relates to a constant detecting apparatus for a brushless DC motor for detecting the inductance of a brushless DC motor comprising a rotor that has a permanent magnet and a stator that generates a rotating magnetic field that causes the rotation of the rotor, a control apparatus for a brushless DC motor, and a program for detecting the constant of a brushless DC motor (*see* col. 1, lines 10-17 of Atarashi). Atarashi further discloses that while the brushless DC motor is being rotated, the winding resistance value fluctuates along with the fluctuations in the temperature of the windings that are wound around the rotor, the induced voltage fluctuates along with the fluctuations in the temperature of the permanent magnet of the rotor, the iron loss fluctuates, or the like, and thereby there are problems that errors occur in the voltage vector, and that errors occur in the results of the calculation of the d axis inductance and the q axis inductance (*see* col. 2, lines 9-18 of Atarashi). Atarashi further discloses that, in the case that the d axis current command value and the q axis current command value are calculated based on a d axis inductance and a q axis inductance that include these errors, there are the problems that the precision of the initial response decreases, and that the responsiveness during feedback control deteriorates (*see* col. 2, lines 19-25 of Atarashi).

Accordingly, as a result of the differing motivation of Atarashi, rather than teaching a d-axis current generating means for generating, in accordance with the motor's rated loss decreased by the loss, an instruction signal for a d-axis current, as recited, *inter alia*, in claim 1, Atarashi teaches that a current command value calculating device calculates the magnetic field axis current command value and the torque axis current command value based on the induced voltage constant, the magnetic field axis inductance, the torque axis inductance, and the torque command

value (*see* col. 8, lines 46-52 of Atarashi). A person of ordinary skill in the art would clearly understand that the motor's rated loss decreased by the loss is not the same as the induced voltage constant, the magnetic field axis inductance, the torque axis inductance, and the torque command value. Furthermore, Atarashi fails to even suggest generating an instruction signal for a d-axis current in accordance with the motor's rated loss decreased by the loss.

Additionally, Atarashi further fails to teach or suggest "activating the d-axis current generating means if the motor is in the recovery state," as the Examiner conceded. However, Applicant respectfully disagrees with the Examiner's contention that one of ordinary skill in the art would also recognize that the activation of the d-axis current generating means is obvious in the recovery state since the d-axis current is preferably as small as possible. Applicant respectfully submits that the rejection is improper for failing to provide any evidence to support the Examiner's position that the feature recited in the claim is in fact well known. The MPEP states that:

> It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known."[1] See MPEP § 2144.03(A).

Therefore, in response to these remarks, Applicant respectfully requests that the Examiner withdraw the 35 U.S.C. § 103(a) rejection of claim 1 or provide a reference or references showing all of the claimed features.

For at least the reasons discussed above, Applicant respectfully submits that claim 1 is patentable over Atarashi and the knowledge of a person of ordinary skill in the art. Independent

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[1] Citing, *In re Ahlert*, 424 F.2d at 1091, 165 USPQ at 420-21. See also *In re Grose*, 592 F.2d 1161, 1167-68, 201 USPQ 57, 63 (CCPA 1979)

claim 2 recites features similar to, although not necessarily coextensive with, the features discussed above with respect to claim 1. Applicant respectfully submits that claim 2 is patentable over Atarashi and the knowledge of a person of ordinary skill in the art for at least the reasons discussed above with respect to claim 1.

Turning now to independent claim 3, the Examiner alleges that Atarashi teaches "a d-axis current generating means for generating, in accordance with the estimated temperature rise, an instruction signal for flowing a d-axis current, with the same directionality as the magnetic field of the motor, to the motor," as recited, *inter alia*, in claim 3. Applicant respectfully disagrees. As discussed above with respect to claim 1, Atarashi teaches that a current command value calculating device calculates the magnetic field axis current command value and the torque axis current command value based on the induced voltage constant, the magnetic field axis inductance, the torque axis inductance, and the torque command value (*see* col. 8, lines 46-52 of Atarashi). A person of ordinary skill in the art would clearly understand that the estimated temperature rise is not the same as the induced voltage constant, the magnetic field axis inductance, the torque axis inductance, and the torque command value and that Atarashi does not teach or suggest this feature of claim 3.

The Examiner concedes that Atarashi does not teach "activating the d-axis current generating means if motor is in the recovery state," as recited, *inter alia*, in claim 3, but alleges that it would have been obvious to a person of ordinary skill in the art. Applicant respectfully disagrees for at least the reasons discussed above with respect to claim 1.

Accordingly, Applicant respectfully submits that, for at least the reasons discussed above, claim 3 is patentable over Atarashi and the knowledge of a person of ordinary skill in the art. Claims 4 and 5 are dependent on claims 2 and 3. Applicant respectfully submits that the

disclosure of Kato and Kumar do not cure the deficiencies of Atarashi and the knowledge of a person of ordinary skill in the art with respect to claims 2 and 3. Accordingly, Applicant respectfully submits that claims 4 and 5 are patentable over Atarashi and the knowledge of a person of ordinary skill in the art at least by virtue of their dependency on claims 2 or 3.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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